



Children's food consumption in schools: between playgrounds, classrooms and cafeterias

Alimentación infantil en el ámbito escolar: entre patios, aulas y comedores

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ABSTRACT As an interdisciplinary group of researchers, we carried out a diagnostic investigation to describe and analyze children's food consumption during recesses in public primary schools of the city of Buenos Aires. Eating during breaks is a widespread practice –without variation in magnitude among different geographic areas of the city– that is conditioned by certain features of school settings: the existence of snack stands within the school, the provision of structured meals, the existence of drinking fountains on the playgrounds and the distribution of fruits. Likewise, food consumption varies by gender, in close relationship to the activities and games that girls and boys carry out during the break. These activities are in turn conditioned by institutional norms and the physical spaces available. Through these characteristics of the school environment, a "hidden" education about food is developed that must be made visible and addressed in health promotion activities at the schools.

KEY WORDS Food Consumption; Food and Nutrition Education; School Health.

RESUMEN Desde un equipo interdisciplinario, hemos realizado una investigación diagnóstica con el objetivo de describir y analizar los consumos alimentarios de niños y niñas durante los recreos escolares, en escuelas primarias de gestión estatal de la Ciudad Autónoma de Buenos Aires. Los consumos alimentarios informales resultaron ser un fenómeno extendido –sin diferencias en la magnitud de acuerdo a la zona de la ciudad–, condicionado por ciertas características del entorno escolar: la existencia de kiosco, la oferta de comidas estructuradas, la presencia de bebederos funcionando en los patios o la oferta de frutas. Asimismo, estos consumos alimentarios varían de acuerdo al género, en estrecha relación con el tipo de actividades y juegos que niños y niñas llevan adelante durante los recreos. Estas actividades, a su vez, resultan condicionadas por las normas institucionales y los espacios físicos disponibles. A través de estas particularidades del entorno escolar, se realiza una educación alimentaria "oculta", que es necesario visibilizar y abordar en las acciones de promoción de la salud en el ámbito escolar.

PALABRAS CLAVE Consumo de Alimentos; Educación Alimentaria y Nutricional; Salud Escolar.

INTRODUCTION

Given the growing epidemiological importance of obesity as a child malnutrition issue, numerous technical documents establish the need to implement intervention strategies in two key spheres: food consumption and physical activity. One of the arenas most frequently suggested as a site for these interventions is the school (a).

Different studies (1,2) indicate that food consumption patterns in childhood – though there are variants – are characterized by a high intake of fats, sugars and sodium, and a deficient intake of essential nutrients such as calcium, iron, zinc or vitamin C and fiber. In these food consumption patterns, candies, snacks, sodas and artificial juices occupy a central role.

This type of consumption can be observed at home and at school, often "between classes" and during moments of recreation. Indeed, the high prevalence of child overweight is linked to snacking, in addition to increasingly sedentary leisure activities (television and electronic entertainment). The snacking that occurs during the school day is often particularly emphasized, with special focus on the supply in school snack stands.

In the Autonomous City of Buenos Aires there are approximately 150,000 children enrolled in 454 state-run primary schools; only 15% of these schools have snack stands or buffets. The supply of products for informal food consumption in schools was not regulated at the time this fieldwork was carried out (in the year 2008), except for a regulation stating that all places of sale (snack bars, stands, or buffets) be "in a state of perfect repair and cleanliness" (3). These shops are organized by parent associations (b) and are managed by its members or outsourced. In an attempt to regulate schools snack stands, the Legislative Branch of the City of Buenos Aires recently passed Act No. 3704 (4), which is currently in the process of regulation.

According to the Centers for Disease Control and Prevention (CDC) statistics for 2002 (5), 20.3% of school-aged children within the City of Buenos Aires were documented as overweight and 7.1% as obese (2), and according to sources from the World Health Organization

and the National Center for Health Statistics (OMS-NCHS) for 2007 (6), these numbers reach 40% and 12%, respectively. Such figures are alarming to say the least.

Given this scenario, as an interdisciplinary group (made up of professionals from the social sciences and nutrition) we conducted a diagnostic research study in order to describe and analyze children's food consumption during the school day, in state-run primary schools located in the City of Buenos Aires (in both half-day and full-day schools with different food services).

We focused on food intake during recesses, relating this intake to the food supply within the school (for both informal food consumption and structured meals); activities carried out by children on the playground; characteristics of the facilities in which recesses and structured meals (breakfast, lunch, afternoon snack) take place; and the school norms surrounding these moments.

MATERIAL AND METHODS

As a result of a multi-stage random sampling, school districts (SD) 8, 9, 10, 13 and 21 were selected. The regions of the City of Buenos Aires that were thus represented were the north (SD 9 and 10), the downtown (SD 8), and the south (SD 13 and 21); these regions have large differences in terms of the socio-economic indicators of the population (c).

Within each SD, both half-day and full-day schools with and without food stands in the institution were selected. The sample is therefore made up of eighteen schools: ten half-day schools and eight full-day schools, five with snack bars or stands (four other schools had had snack stands up to the previous year).

Another aspect taken into account to characterize the schools within the sample was the existence and type of food services offered to students. Currently, in the public primary schools of the City of Buenos Aires the following services are offered: breakfast and/or afternoon snack (depending on whether the half-day is in the morning or the afternoon) available to all students;

and lunch, either paid individually or subsidized by the state, in full-day schools. In addition, half-day schools offer a subsidized sack lunch (chicken/cold cuts and cheese sandwich and a fruit or pastry), and in some, a hot lunch meal. A supplemental snack is also offered (usually a dairy product) to those children certified by a public health provider to have a nutritional deficit. These services are provided by concessionaires that must follow the specifications of the contract, defined and supervised by the technical team of the General Office of Schools Services; this body depends on the Ministry of Education of the City of Buenos Aires.

The selected eight *full-day* schools offered breakfast and lunch in cafeterias, and in the schools in SD 21 (the southern part of the city), some students received supplemental snacks. There was greater variation in the type of services provided at the ten *half-day* schools: six offered breakfast/afternoon snack and four did not (d), six offered sack lunches (four schools handed them out to be eaten during school time and two at the end of the school day), two schools offered the supplemental snack and one offered lunch.

Additionally, within the sample there was one half-day school taking part in a pilot experience to promote fruit consumption, carried out by the NGO "5 a Day" in conjunction with the Ministry of Education of the City of Buenos Aires; the project consisted of handing out fruit for students to eat during recess once a week.

As part of the fieldwork, each school was visited for a throughout a period three or four weeks. In each school a series of activities was carried out: observation of all recesses during the day in the different play areas; observation of breakfast and lunch time; open interviews with the school administration (preferably with the vice principal, who in the City of Buenos Aires is in charge of organizing the space and time in which breakfast and/or lunch occurs and supervising the concessionaires in charge of these services); interviews with the teachers in charge of selected grades (third, fifth and seventh); semi-structured interviews with the cafeteria and snack stand staff; a self-administered survey for the families of the students in the selected grades and focus groups with a sample of students from those grades.

We decided to work with third, fifth and seventh grade as they are the last grade of each of the cycles into which primary education is divided in the City of Buenos Aires.

The research project and the informed consent form were evaluated and approved by the Bioethics Committee of the Pedro de Elizalde Children's General Hospital. The parents or guardians signed the informed consent form authorizing the participation of the children in the focus groups, and the children themselves also provided their consent to participate.

The survey had a 70% response rate, with 849 completed surveys. A total of 96 recesses were observed. Of the approximately 5800 students observed during all the recesses, the consumption of foods or beverages by 1000 of them was recorded by direct observation. In addition, 30 structured meals (breakfast/afternoon snack and lunch) were observed, and 90 interviews and 54 focus groups were conducted.

The combination of techniques was proposed as a strategy to approach the different actors in the school community and later compare the data constructed in each case. The self-administered survey was intended to gather socio-demographic information about the households and the frequency of the consumption of selected foods and beverages during recesses and at home, assigning a score to those foods based on different aspects (nutritional contribution, cost, convenience, amount yielded and children's preferences). The survey also included an open question about which foods/beverages were considered more adequate and why. The observation of recesses, purchases (in those schools with food for sale), and breakfast/afternoon snack and lunch time was carried out in order to describe the foods and beverages consumed within the context of the children's activities in those specific moments in the physical spaces selected (classrooms, cafeterias, playgrounds). The interviews and focus groups allowed us access to the explanations of informal eating provided by the different actors in the context of their particular school and life experiences.

The fieldwork was carried out by the five professionals of the team, divided into two subgroups with representation from nutrition and

the social sciences. The work was performed intensively one school district at a time, each subgroup working with half the schools of the district. Before the project was started, an internal training seminar was carried out on qualitative techniques (in particular open interviews and participant observation) in order to discuss, reflect upon and agree upon the approach chosen given the different disciplinary backgrounds of the professionals. The nutritionists adopted "the art of not cutting directly to the chase" (9) as an interview strategy, as well as a rigorous attention to detail when taking field notes, understanding that connections not initially anticipated might appear when "re-visiting" these notes. Both the anthropologist and the social worker agreed to limit the areas of inquiry and the time spent in each school in order to cover the internal variety established in the sampling of schools in the short time available for the project (one year).

These kinds of negotiations and adaptations are necessary in the interplay among different academic disciplines, even more so when the team in question works in the area of health management, in which the time available for research differs from that in academia.

The self-administered home surveys were processed using spreadsheets and the program Statistical Package for the Social Sciences (SPSS). These same tools were also used to process any "quantifiable" data from the recess observation records: the number of children eating or buying a product, the number of children performing a type of activity (games, chatting, etc), the surface area of the spaces for play (in m²). The qualitative data constructed through participant observation, interviews and focus groups was processed with the help of the NVivo software.

INFORMAL FOOD CONSUMPTION: A CONCEPTUAL OVERVIEW

Food consumption during recesses is a type of informal consumption. This term refers to the food consumption outside of structured meals, without a "grammar" (e) to organize them, in which adults allow children great freedom of choice.

From the perspective of the anthropology of food, different authors have stated that, in the current food intake patterns of urban populations, informal eating is gaining importance at the expense of structured meals (10, 12, 14).

Long work days and long commutes within cities have an impact on food consumption, making eating dependent on work schedules and thus reducing the number of meals eaten at home (10, 13). This affects several members of the family, given the greater presence of women in paid jobs outside home, the scant participation of men in daily household work, and the increasing number of meals that children receive in institutions (school cafeterias or community soup kitchens).

Meals prepared and shared at home have not only diminished in number, but also suffered other changes: homemade foods have been simplified; pantries and refrigerators are filled with "service-foods" (f) and the utilization of culinary space has decreased as new technologies have been introduced. These changes have been associated with greater food monotony and the loss of culinary know-how (14).

This decrease in cooking and in the family gathering for meals in the home is also related to a destructuring of the culinary "language". In this way, a different trend in food consumption is observed to be on the rise: snacking, characterized by unstructured food intakes at irregular hours and normally eaten alone.

When analyzing children's eating practices, anthropologist Nora Garrote refers to "snacking" or "eating between meals" as "informal eating" (15); she also establishes, among other aspects, a relationship between the nutritional quality of the products consumed informally and the nutritional status of the children who took part in her study.

While the most marked consumption trend relates to snacking on salty or sweet foods, in this work we prefer to use the term informal eating (instead of snacking) in order to stress the manner of consumption (food intakes at irregular times that do not follow the same norms of food combinations and order of structured meals) and not the type of food itself (which could include products of varied nutritional value).

Fischler, who uses the term "snacking" for this type of food consumption, cites research studies that record a median of 20 food contacts per day in the USA (13). This author states that:

... on a more general level, it is only necessary to observe the expansion of the convenience food market (both sweet and salty products), that is to say, of those foods meant for snacking (chips, crackers, candies, chocolates, chewing gum, industrial cakes and pastries, etc.) to confirm the scale of this phenomenon: family meals retreat against an increase in food intakes that happen here and there, a more or less compulsive snacking... (13 p. 373).

Food corporations are constantly introducing into the market new products for snacking through inundating advertising strategies that become omnipresent in people's daily lives (in food stores, in the media, in the means of transportation, on the street, in public institutions like museums, schools, hospitals, parks and clubs, etc.). Advertisements for snacks and sugary drinks are increasingly aimed directly at children. A study carried out in 2005 in Boston determined that, due to the influence of unhealthy food advertising shown during children's television programs, the children who took part in the research study ingested an extra 167 calories for each hour spent in front of the television (16). Such research studies have established a correlation between exposure to advertising and preference for the consumption of the food products advertised. In this sense, although in this work we will not go in to the characteristics of the food production system and advertising strategies, it is important to take into account that these elements limit and shape people's food "choices", as Raj Patel has indicated, even before "we start to think consciously about them" (17).

RESULTS

Informal food consumption in children

Both through household surveys and recess observations, we were able to perceive

that informal food consumption in schools is an extended phenomenon in schools in the different parts of the city.

Based on the responses provided by parents or guardians, 89% of the children consume some type of food or beverage during school recesses, in 50% of the cases on a daily basis.

Regarding the socio-economic level of the households (according to the information included in the survey), 90% of children who live in low-income households (g) consume some food or beverage during recesses, while the food consumption in children who live in households without economic hardship is 88%; the figures are almost identical.

These percentages were also unaffected by breakfasts consumed at home, as the numbers were constant between those who always had breakfast at home and those who sometimes or never had it.

When there was a snack bar or stand inside the school, 43% of the parents said that their children bought food or beverages there to eat during recesses, and 26% said that they took the food from home. In those schools without food for sale, 38% of parents reported that they bought products on their way to school, and 37% expressed that the food or beverages for the recesses were taken from home (h). In the *focus groups* with children, it was also mentioned that they bought food from informal vendors at the school entrance. The average daily amount of money spent was 2.60 Argentine pesos (equivalent to 0.80 dollars, year 2008). The median was 2 pesos (equivalent to 0.60 dollars, year 2008). Both at schools with and without food for sale, there was a high percentage of children who took food or beverages from home to eat during the recesses. This evidenced a previous organization in the act of buying and, consequently, a consideration from the home regarding the type of food destined for informal eating at school. The most common products were: juices, sodas, alfajores [Argentine cookie with caramel filling], cookies, candies or lollipops and potato chips or cheese puffs.

In the survey we also included a list of food and beverages, and requested respondents to rate each item according to its nutritional value, price, amount yielded, convenience, and children's preferences. The best rated foods in

the nutritional aspect were fruits, yoghurt, water, cereal bars and crackers.

However, when assessing the price, fruit – which had been considered to be "nutritive" by 98% of the respondents – was considered economically convenient by only 41%. The same happened with yoghurt. On the other hand, candies and lollipops were rated as "nutritive" by 2%, while 36% considered their price affordable.

When assessing other aspects such as convenience and children's preferences, foods indicated as frequently consumed were better rated, although they received lower ratings in nutritional value. Such was the case of artificial juices, sodas, chips and cheese puffs, cookies and alfajores.

We determined that parents have accurate information regarding the nutritional value of foods. Nevertheless, other characteristics such as children's preferences, convenience and price became important when assessing which foods and beverages to choose for daily consumption.

Among the children we observed eating or drinking during recesses, the most consumed products were: candies and lollipops, juices and sodas, cookies, potato chips, cheese puffs and alfajores. Less frequently, we observed the consumption of water, crackers, saltines, sandwiches and chocolates.

As a result of these observations, we can highlight the following trends:

- In this group of half-day and full-day schools, the consumption of food and beverages was greater during the first recess than during the second. In full day schools, there was less consumption during all the rest of the recesses.
- The average number of children observed engaging in some type of food intake during the first recess was greater in half-day schools than in full-day schools.
- Among half-day schools, average food consumption in schools with no breakfast or afternoon snack was twice the average amount of food consumed in those schools providing the service.
- Food consumption was also greater in the afternoon shift of half-day schools. Nevertheless, in

the schools observed in the afternoon both factors coincided: the time of day and the absence of an afternoon snack.

- In those schools with snack bars/stands, food and beverage consumption was only 4% higher than in schools that did not sell food. However, the type of products consumed differed: at schools with snack bars/stands there was greater consumption of potato chips and other crunchy snacks, hot dogs, empanadas [savory pastries] and chocolates, depending on what was offered. The consumption of sodas was greater at schools with food for sale and the consumption of juices was greater in the other schools. There was no difference in the consumption of candies, lollipops, alfajores and cookies among schools with or without snack bars/stands.
- At schools without drinking fountains, the consumption of sodas and juices was four times greater than that the consumption observed at schools with working drinking fountains on the playgrounds.

As the amount of children who consumed food and/or beverages during recesses was greater in half-day schools and, among them, in those with no breakfast/ afternoon snack provided by the school, we can suggest that *informal food consumption increases as a consequence of the lack of structured meals at school*. On the other hand, the consumption of sodas and juices is influenced by *the availability of drinking water in the areas where children play*, with less consumption of soda and juices in schools with drinking fountains.

The presence of a *snack bar or stand inside the school* does not significantly influence the amount of consumption, but it does *condition the type of products consumed*. The snack bar/stand also lends other characteristics to the recess itself: different grades taking turns in order to buy; the existence of waiting periods, arguments or fights and less time to play.

Based on the observations carried out during the moment of purchase and the comments made by some school principals, it became evident that making purchases at snack

bars/stands means a loss of recess play time in order to "stand in line," or the generation of conflicts between children as a result of crowding in front of the counter or window of the stand.

The children in the focus groups questioned the price of the products at the school snack bar/stand; and in their comments a clear differentiation was made between those who could buy regularly (and with what amount of money) and those who could not. They also identified those classmates who shared (or did not share) the purchased products and those who thought up "bartering" strategies (for example: hard-to-get collectable cards in exchange for coins) to be able to buy things in the snack stand.

Some school principals and teachers negatively characterized the products that were offered to children. However, there are few sale restrictions (mainly chewing gum, particularly big or hard candies or round lollipops, due to fear of choking); those interviewed expressed that the snack stands are necessary because they guarantee certain income to the school through the parent associations. The parents who are part of the associations justified that the products they sell are the products children are used to consuming, and added that if they are not sold at the school the still children buy the products but *"the money goes somewhere else."*

Principals, teachers and parents in charge of the associations mentioned only incidentally the impact of the snack stands on children's food education and the contradiction with concepts formally taught at school.

A different situation: fruit during recess

In one school taking part in a pilot experience for the promotion of fruit consumption, 95% of children ate fruit during the recesses in which they were offered.

In the focus groups, we talked to the children about eating fruit and in what context (when, where and with whom).

Some comments were:

"I love fruit; I eat it every night at home, as a dessert, one a day" (female student, fifth grade).

"I like eating fruit after I have dinner and, sometimes when I get up, my grandma makes me a fruit shake" (male student, third grade).

"My mom tells me to bring a fruit to school... but I don't because the older kids tease us" (female student, fifth grade).

"Sometimes I would come to school eating an apple and they would tease me. Now I throw away the rest of the fruit before I get to school" (male student, seventh grade).

Children usually refer to fruit as a "home" food, generally eaten after dinner, as dessert. They did not consider it an adequate food to take from home to school, mainly because it would expose them to teasing from their schoolmates. Nevertheless, in the fieldwork we could observe that this situation changed when fruits were offered at school to be eaten during recess. In the pilot experience, we could observe that when fruit was consumed generally by everyone, it was no longer a reason for mockery, hostility and/or labeling in the peer group.

Following is the transcription of part of the observation carried out during a recess in which oranges were distributed:

An assistant places a small table next to one of the doors leading to the yard and two plastic trays on top. The vice principal and the assistant begin cutting up the oranges, cutting off the "top" and opening them in four parts without fully separating them. They look like flowers and the smell of oranges starts to flood the covered patio, in which just moments ago a theater exhibition finished. The bell is about to ring. Third grade class "A" does not return to the classroom, the children approach the table and watch how the oranges are sliced. They come out to the patio. The assistant gives each one of them an orange and tells them "throw the peel in the trash can, please". The children eat the oranges, separating the slices, sucking and biting them. They seem enthusiastic about it. One student teacher helps a boy to separate the slices. Two girls sit down and chat, then they go to a trash can in order to spit out the seeds and they throw away the peels. A boy goes to the bathroom to wash his hands after finishing his orange. The bell rings and the rest of the grades come out. One teacher sings to

another "la naranja se pasea..." [Argentine children's song by María Elena Walsh which makes references to oranges], they laugh. A group of boys chat in a circle while they eat their oranges. A boy from third grade asks, "Can I have another one, teacher?" The teacher answers, "What about the rest of the children?" Two girls chime together "I want another one, I want another one." The grades continue to come to the patio, all with their respective oranges. The girls from third grade get their extra orange. Another girl from third grade tells me, "I love fruit; I eat up all my grandma's fruit." A girl from first grade plays with a slice of the peel in her mouth, using it as if it were a boxing mouthpiece; she shows it to another girl. At 10.45, the bell rings, the grades line up and go to their classrooms. The playground is spotless, without a single peel on the floor. The assistant brings a mop and cleans the hall where the table used to cut the fruit sits.

Situations like these illustrate the importance of the social environment in food consumption. Guaranteeing availability (quality and presentation) of the type of food intended to be promoted is essential and makes it possible to keep these foods out of the games of labeling and differentiation within the peer group.

Nevertheless, there are other aspects to be highlighted in this example: the type of food (fruit) is known, valued and accepted by most children, though it is associated with other environments and moments of consumption. The situation would have probably been different if the food being promoted was unknown, or was not a part of the food consumption pattern in the region.

Furthermore, the offer was accompanied by another important element: pedagogical work regarding the importance of fruits in a healthy diet, on habits of self-care (washing hands) and on care of the physical space inhabited (keeping the playground clean). This last aspect is mentioned because of the contrast with the other recesses observed, in which – when the children went back to their classrooms – the playground was littered with food wrappers.

Eating and playing during recesses: gender differences

We also observed that the consumption of food and beverages during the recesses is different between girls and boys, with girls consuming more. This same trend was observed at the moment of the purchase at the snack bar/stand (i). We could observe that both food consumption in girls and "active" games in boys presented larger percentages in the first cycle [grades 1, 2, and 3] than in the second cycle [grades 4 and 5] or third cycle [grades 6 and 7]; the trend observed was therefore that the percentages decreased with age, but the differences between genders were maintained.

During the recesses, food and beverage consumption was integrated into a variety of activities (conversations, games, walks) that girls and boys carry out, some of them individual activities but most of them group activities. A distinction can be made between those games that imply energy consumption and motion through the space, as opposed to "calm" games. Although getting involved in an "active" game is not incompatible with the consumption of a food or beverage, we could observe a general trend that associated, on the one hand, greater food consumption by girls in the context of "calm" games, slow walks around the playground and conversations; and on the other hand, less food consumption by boys involved to a greater extent in games requiring movement and energy consumption.

The development of "active" games by children is conditioned by early lessons from recreational activities and sports that differ according to gender. Soccer is, for example, a game that speaks to most boys. Nevertheless, games during recesses are greatly influenced by the characteristics of the play areas; by the availability of elements such as jump ropes, Chinese jump ropes, balls, etc., provided by the school or taken to school by the children; and, above all, by the institutional rules regarding the games permitted, which generally seek to put limits on "motion" games (soccer, tag, hide and seek, cops and robbers).

The principals and teachers explained that the fundamental reason for placing restrictions

on games is to preserve of the physical integrity of students by preventing accidents; the plays areas are not considered adequate for the children to carry out activities due to their size (j) and the presence of certain architectural features (columns, slippery floors, sharp corners in the walls), although these adults expressed an understanding of children's need to "let go":

...I know how beneficial it is for a child to perform physical activities and to run, but the accidents also have to be taken in to account. This school building is over a hundred years old and it is not prepared for children from 2008, it is prepared for children from the last century, so it has a lot of dangerous places. It is not a safe building, however you look at it...

In the focus groups, children referred to recess as the "time of freedom." We could add "conditional freedom", as abundant references were made to the restrictions that prevent them from enjoying the recesses as they would like to: running, playing soccer, playing tag...

It was interesting to note how, in spite of the fact that almost all schools prohibited playing soccer, boys – in small groups – repeatedly recreated this game, making balls out of a variety of elements: empty plastic bottles, plastic bottle caps, wadded paper, etc. This insistence made it so that although the restrictive rules are the same for girls and boys, in practice boys carry out more "active" games and expend more energy than girls.

In some exceptional cases we observed how teachers and principals promoted games like jump rope and Chinese jump rope, resulting in a similar proportion of boys and girls playing games that entailed energy expenditure.

It is therefore important to pay attention to the type of games played in the playground (especially the physical space, available elements, and related rules), not only because for many children it is one of the few spaces available for physical and recreational activities on a daily basis, but also because the type of games carried out is related to more or less informal food consumption.

Older children (do not?) have breakfast

Another element we described as a *determinant* in informal food consumption is the absence of *breakfast/afternoon snacks* at school (in those schools where breakfast/afternoon snacks are not offered, the number of children who eat during recesses is doubled).

In the schools that do offer this service, we could observe differences in the way in which the meal was organized: the time, duration, and place the meal was offered, as well as the manner of consumption, varied from school to school.

In many cases, principals and teachers told us that in the second and third cycles the consumption of the breakfast offered by schools diminishes as children get older. They related this situation to a need in the older children to differentiate themselves from the younger children, identified as those who "drink milk".

We observed that in most cases breakfast was eaten in the classrooms (even in full-day schools with a cafeteria). The waitress or "milk lady" – as is the nickname within the schools – takes to each classroom (using a cart or basket) glasses, pitchers with the liquid component of the meal (chocolate milk or yoghurt), and the portions of the solid component designated to each classroom according to number of children enrolled (alfajores, cereal bars, cookies, etc.). The waitresses do not always pour the glasses for the children. Often the teachers or the children themselves serve from the pitchers, generally appointing a person in charge of the task for that day. The breakfast hour varies according to the order in which the waitress visits each class. Normally breakfast is offered before the first recess, but it is sometimes delayed. Frequently, the "milk lady" comes to the classroom while a pedagogical activity is underway. It is then the teacher who decides how to continue. Some teachers prefer to take a short pause, "interrupting" the activity; many others prefer to continue with the activity and have breakfast at the same time. The choices made by the teachers tend to vary according to the grade. In the first cycle, teachers tend to preserve the habit started in preschool/kindergarten of making breakfast a separate moment. This implies putting away all school items and sometimes even putting

a table cloth over the desks. In the second and third cycles teachers do not find it necessary to generate this "*ritual*," as they consider that the students are older and can carry out school activities while they eat breakfast without much difficulty. Teachers in the third cycle also repeatedly stated that older children show a lack of interest in breakfast, with few students choosing to eat it. This situation makes it even less justifiable to interrupt the class to serve the meal.

In the observations carried out during breakfast time in seventh grade, we noticed that when breakfast was offered in the cafeteria or when a specific moment was dedicated to the meal within the classroom, the number of students who ate breakfast ranged from 50% to 70%; when the school activities were not interrupted, just 15% ate the available breakfast.

Interestingly, the teachers interviewed – when talking about food consumption at home – related the quantity and quality of food intake with the time and spatial organization of meals at home. They stated, for example, that most children skipped breakfast because little or no time was dedicated to this meal; children usually get up or are woken up with little extra time before having to go to school. "*They get up late and don't eat breakfast, and then they fill themselves up with all the sweets they eat here.*"

Precisely, according to the answers given in the surveys, half of the children did not eat breakfast at home or ate breakfast at home sporadically. More than half of the parents gave as the main reason for children not eating breakfast at home the existence of "breakfast/afternoon snacks at school" (62%); other reasons included "he/she wakes up without an appetite" (25%) and "he/she wakes up late" (18%). It seems that most of the parents whose children do not have breakfast at home are confident that they will receive breakfast at school. This is another argument for highlighting the importance of this service within the schools; the first meal of the day is closely related to school performance, as it has been documented that "the attention process and short-term memory are vulnerable to prolonged fasting" (20).

Teachers expressed a relationship between the time taken for meals and the effective consumption of those meals when talking about families, but this relationship went

unrecognized when talking about the school. Indeed, teachers and principals frequently considered that "*feeding students*" was an extra burden placed on the school that was at odds with the central task of "*teaching*."

This is why it is preferred to breakfast while continuing work in the classroom, without assigning breakfast a specific time and without valuing it as an opportunity to create positive social and health care habits. This spatial-temporal arrangement of the meal, and the implicit value thereby assigned the meal, influences the effective consumption of breakfast: it is offered and available and yet few older students eat it.

Food consumption habits are strongly connected to emotions, as we learn to like mainly those foods that we associate with pleasant moments. This is why we think it important to pay attention to the moments and places designated to food consumption. *The decline of meals as rituals* (21), which means less interaction among eaters and a loss of the importance of eating together, *not only affects family meals, but also institutional meals*, in this case, breakfast at school. And therefore has an impact at the educational, social and nutritional levels.

FINAL THOUGHTS

In this research study we evidenced the particular way in which two major trends in contemporary food consumption – informal eating and the deconstructing or decline of meals as a ritual (10,14,21) – influence food consumption situations at school.

However, we also recorded some exceptions to these trends: the experiences of fruit offered during recesses and breakfasts offered within a structured framework. Both encourage us to think that it is possible to enhance the school's ability to create alternatives that favor healthy eating habits.

On the other hand, we confirmed that families have adequate information about foods considered to be nutritionally optimal; however, there is an important difference between this knowledge and the food and beverage

consumption parents signaled as typical in their children during recesses.

In this regard, there are other factors which become relevant when choosing food and beverages for regular consumption: children's preferences, convenience and price. The explanations teachers and principals provide regarding this type of consumption center on the students' homes. Interestingly, *the importance of schools was invisibilized*.

These aspects demonstrate that work with children, families and schools should be centered not only on the transmission of information, but also on devising new strategies based in the reflection and problematization of the everyday situations that condition eating behaviors. In this sense, we also think it is necessary to problematize the widespread notion regarding the need for people to change their food consumption habits, understanding this change as an act of individual responsibility based on reliable information. Instead, our team suggests that it is necessary to first *look at the environment in which daily life takes place* and analyze the options offered (21,22).

Although food consumption is carried out with industrial production and oligopolistic merchandizing channels as a backdrop (17), the focus of this work has been to evidence some aspects of the "micropolitics" (23,24) of food consumption at schools.

In the school environment, we have observed the importance assigned to three elements: temporal-spatial organization of structured meals and of recesses, school rules concerning games and food consumption and, of course, the type of food available (the existence of structured meals, of foods and beverages for sale, of working drinking fountains in play areas, of experiences promoting fruit consumption).

In relation to food sales within primary schools, it is necessary to make clear that a lack of funding and building deterioration in state-run schools underlies the existence of snack stands as a local fundraising mechanism (not without its conflicts). We consider that if a school community (principals, teachers, parent associations and children) decides to support such an endeavor, it should be included within a project that promotes healthy food consumption habits,

choosing foods consistent with educational messages. Taking into consideration the worrying epidemiological situation, alternatives to those consumption options to which children are "over-exposed" should be offered. In addition, food or beverage advertisements (both explicit advertisements and those implicit in "talks" sponsored by industries) should be avoided at school, in accordance with the Sydney Principles (25) that seek to promote global regulations for food advertising targeting children.

On the other hand, within the schools' normative frameworks it is surprising to note the abundant array of rules that are applied locally to recess games in comparison with the sparse rules governing informal food consumption. Nevertheless, whether ample or scarce, both sets of norms have something in common: a concern for children's safety, aimed at preventing situations which could cause accidents. In terms of games, it is not permitted to run or play soccer; in the case of food sold at school, no round lollipops or candies are allowed (for fear of choking). These examples evidence a complex background: *the notion of safety permeates the concept of health* in the school rules regarding the care of children's health during the school day. The concern over avoiding accidents which could affect the school staff administratively and/or judicially tends to impede the development of actions that favor other needs of children.

Similarly, it is important to highlight that in the way of *organizing* the recess spaces and in the organization of structured meals at school *meanings are constructed* that have an impact on children's food habits. In this sense, the message of "playing calmly and not running" and of "having breakfast quickly while working in the classroom," are organizational decisions that have an effect on children's activities and food consumption.

In the temporal-spatial arrangements and in the rules and messages that frame all food consumption situations at school, an "invisible" pedagogical work is carried out (26) which could be said to form part of the "hidden curriculum" of food and nutrition education.

This work the school carries out on the body takes place right where supposedly it does not take place, through teachings that are generally

incidental [...], through lateral actions that no written curriculum mentions, but that everyone practices while teaching what is important. (26)

We think it necessary to make visible these aspects of children's socialization regarding food and to reflect upon the impact they have on what children learn and do.

We suggest that through the different aspects of the environment (physical, normative and in the food offered) a "hidden" education

about food is developed, which in many ways contradicts the contents of the "explicit" food education provided. Given that children also learn from belonging to a school community with particular forms of organization, physical structures, rules, customs and values, we think that a strategy for food and nutritional education at school should include the experiential aspects of food consumption. We hope, as a result of this work, to have contributed to the process of visualizing and reflecting upon these aspects.

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END NOTES

a. Some such global initiatives are the WHO Global Strategy, PAHO Health Promoting Schools, NAOS Strategy, and Healthy Municipalities Initiative. In all of them schools are considered a key environment due to their socializing and educational functions.

b. These parent associations participate in and collaborate with the schools in different aspects, such as managing government subsidies and obtaining financial resources in a number of ways (monthly student dues, raffles, events, etc.)

c. In school districts 9 and 10 (in the northern region of the City), 9.1% and 8.3% of homes are in a situation of deprivation, that is to say, their income is insufficient to cover the common expenses of foods and services; in school district 8 (central part of the city), this percentage is 8.7 % and in school districts 13 and 21 (southern region of the city), 14.8 % and a 21.5 %, respectively. The index of material deprivation in homes (Índice de privación material de los hogares) in the city is 11.7% (7).

d. Although breakfast/afternoon snack is free and universal – Act No. 547 (8) – some schools do not receive the meal because their principals claimed it was not consumed by the students. In our sample, four half-day schools did not receive the breakfast/afternoon snack.

e. In Argentina, we consider breakfast, lunch, afternoon snack and dinner to be structured meals. This recognition is generalized in societal representations although omissions, overlapping and other differences may exist in practice. The concept of "culinary grammar" proposed by Claude Fischler (10) and Massimo Montanari (11) refers to the norms regarding the association and combination of ingredients that make up the dishes of each region and that determine the types of food to be eaten throughout the day and throughout the year. These rules that connect foods in order to create and give meaning to the

food practices in a region are comparable to the grammar rules that connect words in order to create the sentences of a language. The rules that establish the importance of foods, combinations, and preparations for each type of intake are present at structured meals. Informal food consumption tends to elude rules and times, and tends to be individual.

f. "Service-food" is the name given to industrially produced foods that incorporate phases of the cooking process, moving them from the kitchen to the factory (for example: peeled and sliced potatoes; prebaked crusts, etc.)

g. The index of material deprivation in homes is an approximate estimate of insufficient household income to afford common expenses of food and services (18).

h. In a study carried out at primary schools in four Argentine provinces (19), a survey conducted with parents revealed that 84% of children ate some type of food during recesses. Of these, 40% took the food from home.

i. The study carried out by the Ministry of Education and the Food and Agriculture Organization (FAO), revealed through a survey of parents that among those children who ate during recesses, girls represented a higher percentage (53%); girls also made up the majority of those buying from the snack stands at school (19).

j. In relation to the actual space available per child to move around in during the recess, we observed a median of 2.4 m² per child, although there was a great deal of variation. The range was between 0.37m² and 10.4 m² per child. It is important to highlight that according to the Criterios y normativas básicas de arquitectura escolar [Basic rules and criteria for school architecture], the minimum recommended semi-covered and/or uncovered surface area for recreation is 2 m² per student. Consequently, although the median meets these standards, there are strong deficits in some schools.

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